DOCUMENT RESUME

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[Review of Navy Contracting Procedures and Decision to Overhaul Ship Equipment Using Contractor Rather than Naval Shipyard Employees]. PSAD-77-149; PSAD-77-150; B-146889. August 11, 1977. 4 pp. + enclosure (9 pp.).

Report to Rep. Morris K. Udall; Sen. Henry M. Jackson; Sen. Warren G. Magnuson; Rep. Norman D. Dicks; by Elmer B. Staats, Comptroller General.

Issue Area: Federal Procurement of Goods and Services: OMB Guidelines for Relying on the Private Sector to Supply Federal Needs (1906).
Contact: Procurement and Systems Acquisition Div.
Budget Function: National Defense: Department of Defense - Procurement & Contracts (058).
Organization Concerned: Department of the Navy: Naval Sea Systems Command; Department of the Navy: Puget Sound Naval Shipyard, WA; Hughes Aircraft Co.
Congressional Relevance: House Committee on Armed Services; Senate Committee on Armed Services. Rep. Morris K. Udall; Rep. Norman D. Dicks; Sen. Henry M. Jackson; Sen. Warren G. Magnuson.

A review of a Navy contract award to Hughes Aircraft Company to repair equipment aboard the U.S.S. Kitty Hawk was based on information which indicated that the award of the contract to Hughes would result in a higher cost to the Government than if Puget Sound Naval Shipyard, Naval Sea System Command, did the work. Findings/Conclusions: The Naval Sea Systems Command determined that Hughes was the only source capable of doing the work without making a detailed analysis of the Shipyard's capabilities or soliciting offers from other commercial sources. Navy officials stated that detailed specifications were not available for use by other commercial sources because the Navy's drawings and data package had not been kept up to date. GAO believed that Sea Systems had sufficient time before the award to evaluate the Shipyard's capability to do the work and to take action necessary to develop any additional capability needed. Since cost estimates had not been prepared, GAO could not determine what the cost of the work would have been, but it was believed that the unofficial estimate was understated. It was believed that Sea Systems should have evaluated relative costs before, rather than after, contracting with Hughes and that other sources should have been solicited. Recommendations: The Secretary of the Navy should: reassess the Sea Systems' plan for future overhauls to better determine the Navy's minimum needs for in-house maintenance capability; update the tactical data system equipment design packages and drawings; and solicit competition to the maximum practicable extent. (Author/HTW)

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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B-146889

AUG 11 1977

03239

The Honorable Henry M. Jackson
United States Senate
The Honorable Warren G. Magnuson
United States Senate
The Honorable Norman D. Dicks
House of Representatives

In response to your December 7, 1976, request, we reviewed the circumstances surrounding the award of a Department of the Navy contract to Hughes Aircraft Company to repair Navy tactical data system equipment aboard the U.S.S. Kitty Hawk. We reviewed the contract file and related records and correspondence, and interviewed representatives of the Puget Sound Naval Shipyard, Naval Sea Systems Command, Naval Ship Engineering Center, Naval Material Command, and the Office of Management and Budget. We also contacted members of the International Brotherhood of Electrical Workers and the Bremerton Metal Trades Council.

According to your request, you have information which indicates that this award would result in a higher cost to the Government than if Puget Sound Naval Shipyard, Bremerton, Washington, did the work.

Sea Systems determined Hughes to be the only source capable of doing the level of repair work needed. Sea Systems, however, made this determination without making a detailed analysis of the Shipyard's capabilities or requesting that the Shipyard prepare a cost estimate for doing the work. Neither did it solicit offers from other commercial sources.

Navy officials advised us that detailed performance and design specifications were not available for use by other commercial sources because the Navy's drawings and the data package had not been kept up to date. The officials further advised us that for a commercial source to update the drawings, the cost would be a minimum of $400,000; therefore, it would be reluctant to undertake such a task without a guarantee that it would be awarded some repair work. The overhaul program, of which the Kitty Hawk is the first ship, is expected to involve about 30 ships at an estimated cost of about $36 million.

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Our review of available records showed that the Shipyard's capability to do the necessary repairs was subject to considerable speculation. We believe, however, that Sea Systems had sufficient time before the award to evaluate that capability and take action necessary to develop any additional capability needed.

In view of the questions about the Shipyard's capability, and the fact that it did not prepare an official cost estimate for the Kitty Hawk overhaul in sufficient detail to be independently audited, we could not determine what the cost of the work would have been. We believe, however, that its unofficial estimate on the Kitty Hawk was understated since it was considerably lower than its estimate for similar work on the U.S.S. Ranger.

In conclusion, we believe Sea Systems should have evaluated the capability and relative cost of using existing naval shipyards to perform needed repair work before, rather than after, contracting with Hughes. We also believe that other potentially competitive commercial sources should have been solicited. If these actions had been taken, the Department of the Navy would have increased its likelihood of selecting the most economical source.

We further believe that the Navy's plan for future tactical data system overhauls should be reassessed to give proper consideration to the requirements for competitive procurement and better define the minimum needs of the Navy for in-house maintenance capability.

RECOMMENDATIONS

We recommend that the Secretary of the Navy:

--Reassess the Sea Systems' plan for future overhauls to better determine the Navy's minimum needs for in-house maintenance capability.

--Update the tactical data system equipment design packages and drawings.

--Solicit competition to the maximum practicable extent from all potential Government and commercial sources for those repair projects in excess of the Navy's minimum needs for in-house maintenance capability.

Where a significant cost advantage is evident, the low offeror should be given ample opportunity to overcome minor deficiencies in technical capability.

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As instructed by your offices, we did not request comments on this report from the Department of Defense or the contractor involved. We did, however, informally discuss the facts developed and our conclusions with Navy personnel, and considered their comments in preparing this report.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

Since this report contains recommendations to the Secretary of the Navy, your offices have authorized the unrestricted release of this report to set the requirements of section 236 in motion. We are sending copies of this report today, therefore, to the Secretaries of Defense and Navy; the Director, Office of Management and Budget; and the Chairmen, House Committee on Government Operations, Senate Committee on Governmental Affairs, the House and Senate Committees on Appropriations, and Armed Services. Copies are also being

made available to other interested parties and will be furnished to others upon request.

Comptroller General
of the United States

Enclosure

ENCLOSURE I

SUMMARY OF INFORMATION DEVELOPED ON THE AWARD TO HUGHES AIRCRAFT COMPANY FOR THE REPAIR OF TACTICAL DATA EQUIPMENT ABOARD THE U.S.S. KITTY HAWK

The contract in question pertains to the repair of display consoles which were manufactured by Hughes Aircraft Company in the early 1960s. The consoles display information so ship commanders can observe whether a target is surface, subsurface, or in the air, and whether it is friend, foe, or unknown.

In October 1974 the Chief of Naval Operations presented a plan to overhaul Navy tactical data system equipment. The plan stated that most of the equipment would be at least 10 years old by fiscal year 1977 and that equipment performance and reliability had been degraded. The overhaul was intended to extend the equipment's useful life by at least 10 years. The plan covered the repair of 30 tactical data system equipped ships at a cost of about $36 million. Although the plan did not identify the Kitty Hawk as one of the ships, Kitty Hawk subsequently became the first ship to be overhauled under the plan.

The Navy plan called for a modified Class A overhaul. A Navy instruction defines Class A overhaul as:

> "Work which will sustain or improve the operating and performance characteristics of the repaired component to meet the most recent design and technical specifications. The product will be 'like new' in appearance as well as in operation and performance."

The specified modified Class A overhaul generally deleted the requirement for the like new appearance, and in conjunction with the Navy's plan, provided for complete interoperability with all tactical data system equipped ships of North Atlantic Treaty Organization countries. According to Navy officials, previous overhauls of similar equipment had been performed at a Class B level. A Class B overhaul is defined as:

> "Work which will restore the operating and performance characteristics of the repaired

component to its 'original' design and technical specifications."

On May 22, 1975, the Naval Ship Engineering Center advised Sea Systems that funds were available for the Kitty Hawk tactical data system refurbishment. About 8 months later, on January 16, 1976, Sea Systems awarded a sole-source contract to Hughes for the overhaul of the Kitty Hawk display consoles. The contract provided that the work would be generally accomplished in accordance with given standards. The contract value of $1,820,000 also covered work on the U.S.S. Horne. Of this amount, $1,145,000 represented work on the Kitty Hawk.

USE OF PUGET SOUND NOT CONSIDERED BEFORE CONTRACT AWARD

Within Sea Systems, the Commander, Fleet Support Directorate, has responsibility for deciding whether Sea Systems should rely on the private enterprise system or whether it should obtain the services needed by using Government personnel. Office of Management and Budget Circular A-76, "Policies for Acquiring Commercial or Industrial Products and Services for Government Use," states the Federal Government's general policy of relying on the private enterprise system to supply its needs, except where it is in the national interest for the Federal Government to provide directly the products and services it uses. One circumstance which would qualify as being in the national interest is when procurement of a product or service from a commercial source would result in higher cost to the Government.

Ship Engineering Center officials, who provide engineering support to Sea Systems, informed us that since the Kitty Hawk was the first ship covered by the plan, the original equipment manufacturer--Hughes--was thought to be the only source with the necessary capability to do the work. Also, the Commander, Fleet Support Directorate, told us that when the repair of the Kitty Hawk was scheduled, no shipyard had the necessary capability to perform a Class A overhaul, and that he, therefore, decided to contract out to Hughes. This decision, however, was made without performing a detailed analysis of the capabilities of any shipyard, including Puget Sound Naval Shipyard, to perform the work at the specified Class A modified level.

CONTROVERSY OVER PUGET SOUND'S CAPABILITY

At the time the Kitty Hawk overhaul was being planned, no Class A tactical data system overhauls had been performed. However, Puget Sound had performed two Class B overhauls. Class A overhaul requires the complete disassembly of each equipment component for inspection, repair, reassembly, and testing, whereas Class B involves testing the complete system and then repairing those components which are not functioning properly. Such repair may necessitate complete disassembly of each component.

On November 26, 1975, 2 months before the award to Hughes, the Commander, Puget Sound, advised the Commander, Sea Systems, that the Shipyard had a land-based test site, printed circuit board repair facility, and trained personnel to effectively repair tactical data system equipment within the required time frame and requested that the Kitty Hawk repair work be assigned to Puget Sound. As an added incentive, Puget Sound stated that it would accept the work without deferring previously authorized work.

In a December 10, 1975, message, Sea Systems notified Puget Sound that it would not be assigned the Kitty Hawk repair work. The message stated in part that:

> "The scope of this refurbishment is such that it is considered beyond the shipyard's capacity to complete within the available time frame considering this late planning start. Planning and contracting efforts with Hughes have now progressed to the point that any change could jeopardize meeting Kitty Hawk schedule requirements."

The message also advised Puget Sound's capability would be evaluated and considered in future tactical data system workload planning.

On December 17, 1975, the Puget Sound Combat Systems Officer briefed Sea Systems and the Commander, Puget Sound, on the capability of the Shipyard to perform Class A repairs. At that briefing, Puget Sound presented an estimate of about $550,000 to repair the Kitty Hawk.

On April 7, 1976, about 6 weeks after the award to Hughes, Sea Systems stated that a recent visit to Puget Sound

by Sea Systems personnel confirmed that, from an industrial production view, Puget Sound had a facility capable of performing tactical data system repair work. While this supported the Shipyard's view that it was capable of performing the repair work, Sea Systems requested that the Ship Engineering Center conduct an engineering survey of Puget Sound's repair and test capability. Ship Engineering Center officials subsequently evaluated the repair capability of Hughes and three shipyards--Puget Sound, Philadelphia, and Long Beach.

In its May 27, 1976, report to Sea Systems, the Ship Engineering Center stated that while only Hughes was qualified to repair tactical data system equipment, the shipyards possessed approximately equal capability in many areas. Hughes was superior in the three key areas of quality assurance, audit trail, and experience. Puget Sound, which was considered to be unqualified, was reported to need an independent quality assurance program in lieu of quality assurance provided by the workers' supervisors, an audit trail to insure traceability of work done on any piece of equipment, and additional tactical data system experience. The report recommended that Hughes be utilized in the near future as the primary repair activity for display equipment and that Philadelphia Naval Shipyard be designated as the initial backup activity on the east coast. On July 1, 1976, Sea Systems concurred with the report's findings and recommendations.

In our opinion, the above information indicates that the capability of Puget Sound to perform a modified Class A tactical data system overhaul before the award of the contract to Hughes was subject to considerable speculation. We believe, however, that Sea Systems had sufficient time before the award--at least 8 months--to evaluate the level of repair capability that existed at the shipyards and take action necessary to develop any additional capability needed. This belief is supported by the fact that only 4 months after concurring with the Ship Engineering Center's report regarding shipyard capability, Sea Systems determined that Puget Sound had the necessary capability to perform a Class A overhaul of tactical data system equipment on the U.S.S. Ranger.

Sea Systems determined that Puget Sound had gained the additional experience needed by inspecting and testing the Kitty Hawk equipment after it had been overhauled by Hughes and then reworking deficiencies identified. Navy records

show, however, that Puget Sound only spent about 78 days (or about 2 percent of the Hughes' proposed labor charge) reworking deficiencies. Furthermore, the rework related to specific equipment components and did not necessarily require complete disassembly. When compared with the total staff-days required to complete the project, we do not believe that the days spent reworking the deficiencies could have provided Puget Sound significant experience beyond what it already had acquired.

ADDITIONAL COMMERCIAL SOURCES NOT SOLICITED

The Armed Services Procurement Regulation establishes uniform procurement policies and procedures within the Department of Defense. It provides that when the negotiated procurement method is employed, offers should be solicited from the maximum number of qualified sources consistent with the nature and requirements of the supplies or services to be procured.

Sea Systems officials informed us that since this was the first Class A overhaul, it was their opinion that fewer problems would be encountered if the original manufacturer was used. They also told us that development of another commercial source would be very costly and would take about 1 year for another commercial source to develop the necessary overhaul procedures. As a result, Sea Systems did not consider any other commercial sources for the Kitty Hawk overhaul.

On September 25, 1975, about 4 months after it had been advised that funds were available, Sea Systems prepared and submitted its procurement request to contracting personnel. The procurement request recommended sole-source negotiation with Hughes. Therefore, even though Sea Systems had sufficient time to canvass the electronics industry to determine whether any other firms might have been interested in the project, it did not do so.

As justification for the sole-source procurement, Sea Systems provided the following reasons:

--Hughes was the exclusive manufacturer of the display console equipment.

--It was the only firm possessing equipment to repair failed units in an emergency.

--Detailed performance and design specifications were not available to permit required testing of repaired components by any other firm.

The Kitty Hawk repair was not an emergency situation. Rather, the repair had been planned for at least 8 months before the Kitty Hawk's contract award in January 1976. Furthermore, the repair was the first in a series of about 30 ships equipped with tactical data systems.

Ship Engineering Center officials told us that detailed performance and design specifications were not available for use by other commercial sources because the Navy's drawings and data package had not been kept up to date. We were told that since the original equipment was built about 12 years ago there have been over 500 changes. They also told us that potential competitors would need current drawings to assist in the development of work process steps for equipment disassembly, testing, and reassembly. Since the drawings are not available, Hughes has been the only commercial source to perform any work on the Hughes manufactured tactical data system display equipment.

Ship Engineering Center officials further told us that the Navy has the original drawings, the field changes, and the manufacturer's modifications. According to these officials, any commercial source would have to update the drawings at a minimum cost of $400,000 before the work process steps could be prepared; therefore, it would be reluctant to undertake such a task without a guarantee that it would be awarded some repair work.

In view of the requirement of the Armed Services Procurement Regulation to solicit offers from the maximum number of qualified sources and the estimated program cost of about $36 million covering about 30 ships, we believe that Sea Systems should have taken steps to determine whether other qualified commercial sources existed. At a minimum, other firms in the electronics industry should have been contacted and given an opportunity to compete.

We do not believe the Navy has demonstrated that competition was not available from other commercial sources or that

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only one source could meet the Government's minimum needs. Its sole-source procurement was primarily based on its failure to keep tactical data system equipment drawings and specifications up to date.

PUGET SOUND COST ESTIMATE FOR KITTY HAWK APPEARS TO BE UNDERSTATED

Since Sea Systems did not consider the use of Government personnel, it did not request any shipyard, including Puget Sound, to prepare a cost estimate for the Kitty Hawk. Nevertheless, on December 3, 1975, Puget Sound did submit an unofficial cost estimate of $300,000, based on the use of about 1,565 staff-days and material costs of about $85,000.

On December 17, 1975, a Puget Sound official informed Sea Systems that the cost estimate had been increased to about $550,000 to cover conformal coating of printed circuit cards. This estimate was based on 2,815 staff-days and material costs of $125,000. Sea Systems officials told us that they did not take Puget Sound's estimates seriously because they believed it did not understand the scope of the work.

The Hughes proposal for the Kitty Hawk was for about $1,070,000. This bid included direct labor costs of $300,000 based on 4,169 staff-days. The contract amount applicable to the Kitty Hawk was about $1,145,000, including long lead-time items of about $116,000. The final project performance cost, however, was about $1,134,000, including about $12,000 of rework costs for Puget Sound to correct deficiencies noted during its inspections of Hughes' work.

Because of the questions about Puget Sound's ability to perform the required work on the Kitty Hawk and the fact that its cost estimate was not prepared in sufficient detail so that it could be independently audited, we could not determine what Puget Sound's cost of performance would have been. We believe, however, that Puget Sound's unofficial estimate for the Kitty Hawk was understated since it was considerably lower than its estimate for similar work on the U.S.S. Ranger.

In November 1976 Puget Sound submitted an estimate of about $900,000 to overhaul the Ranger's tactical data system equipment. The proposal included computer peripheral equipment not manufactured by Hughes. The estimated cost for overhaul of the Hughes manufactured display console equipment was

about $800,000. The estimate was based on about 3,825 staff-days, or about 136 percent of its staff-day estimate for the Kitty Hawk.

Puget Sound officials would not explain the $250,000 difference between their Kitty Hawk and Ranger cost estimates because they never considered their Kitty Hawk estimate to be official. We believe that the $250,000 difference between the two estimates--which represents a 45-percent increase--raises a serious question as to the reasonableness of Puget Sound's cost estimate of $550,000 on the Kitty Hawk.

The bids submitted by Puget Sound on the Kitty Hawk and the Ranger did not represent the full cost to the Federal Government. Office of Management and Budget policy requires that, for cost comparison purposes, the Federal Government should include factors other than labor and material, such as depreciation costs, full-funded retirement costs, and foregone taxes. However, even though the bids did not include all costs and no comparative cost studies were performed, we believe the estimates indicate Puget Sound could be economically competitive for future tactical data system overhauls.

NAVY'S PLAN FOR FUTURE OVERHAULS

After the display system of the Kitty Hawk was repaired by Hughes, Sea Systems used Puget Sound for the next tactical data system overhaul. That overhaul was aboard the U.S.S. Ranger. A cognizant Sea Systems official told us that this decision was partially based on the Navy's need to have shipyard maintenance capability for tactical data system equipment.

In March 1977 Sea Systems proposed a plan to have future tactical data system overhauls performed by two Navy shipyards so that in-house technical competence necessary for military contingencies would be maintained. The plan further proposed that any overhaul projects in excess of the shipyards' capacity would be awarded to Hughes on a noncompetitive basis because of the cost and time necessary to prepare and maintain system design packages for potentially competitive sources. Navy officials could not say whether such costs would be offset by the economic advantages of competitive procurement. We were also told that the Assistant Secretary

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of the Navy (Installations and Logistics) agreed with the plan.

Although we were told that the plan considered future concurrent ship overhauls and workload leveling needs, it did not consider the number of overhauls required to maintain the necessary maintenance capability. Furthermore, the Navy has not determined whether shipyard personnel need to perform Class A overhauls to maintain their technical competence.

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-146889

AUG 11 1977

The Honorable Morris K. Udall
House of Representatives

Dear Mr. Udall:

In response to your November 8, 1976, request, we reviewed the circumstances surrounding the award of a Department of the Navy contract to Hughes Aircraft Company to repair Navy tactical data system equipment aboard the U.S.S. Kitty Hawk. We reviewed the contract file and related records and correspondence, and interviewed representatives of the Puget Sound Naval Shipyard, Naval Sea Systems Command, Naval Ship Engineering Center, Naval Material Command, and the Office of Management and Budget. We also contacted members of the International Brotherhood of Electrical Workers and the Bremerton Metal Trades Council.

According to your request, you have information which indicates that this award would result in a higher cost to the Government than if Puget Sound Naval Shipyard, Bremerton, Washington, did the work.

Sea Systems determined Hughes to be the only source capable of doing the level of repair work needed. Sea Systems, however, made this determination without making a detailed analysis of the Shipyard's capabilities or requesting that the Shipyard prepare a cost estimate for doing the work. Neither did it solicit offers from other commercial sources.

Navy officials advised us that detailed performance and design specifications were not available for use by other commercial sources because the Navy's drawings and the data package had not been kept up to date. The officials further advised us that for a commercial source to update the drawings, the cost would be a minimum of $400,000; therefore, it would be reluctant to undertake such a task without a guarantee that it would be awarded some repair work. The overhaul program, of which the Kitty Hawk is the first ship, is expected to involve about 30 ships at an estimated cost of about $36 million.

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Our review of available records showed that the Shipyard's capability to do the necessary repairs was subject to considerable speculation. We believe, however, that Sea Systems had sufficient time before the award to evaluate that capability and take action necessary to develop any additional capability needed.

In view of the questions about the Shipyard's capability, and the fact that it did not prepare an official cost estimate for the Kitty Hawk overhaul in sufficient detail to be independently audited, we could not determine what the cost of the work would have been. We believe, however, that its unofficial estimate on the Kitty Hawk was understated since it was considerably lower than its estimate for similar work on the U.S.S. Ranger.

In conclusion, we believe Sea Systems should have evaluated the capability and relative cost of using existing naval shipyards to perform needed repair work before, rather than after, contracting with Hughes. We also believe that other potentially competitive commercial sources should have been solicited. If these actions had been taken, the Department of the Navy would have increased its likelihood of selecting the most economical source.

We further believe that the Navy's plan for future tactical data system overhauls should be reassessed to give proper consideration to the requirements for competitive procurement and better define the minimum needs of the Navy for in-house maintenance capability.

RECOMMENDATIONS

We recommend that the Secretary of the Navy:

--Reassess the Sea Systems' plan for future overhauls to better determine the Navy's minimum needs for in-house maintenance capability.

--Update the tactical data system equipment design packages and drawings.

--Solicit competition to the maximum practicable extent from all potential Government and commercial sources for those repair projects in excess of the Navy's minimum needs for in-house maintenance capability.

Where a significant cost advantage is evident, the low offeror should be given ample opportunity to overcome minor deficiencies in technical capability.

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Subsequent to your request, we received a December 7, 1976, letter jointly signed by Senators Warren G. Magnuson and Henry M. Jackson, and Representative Norman D. Dicks also requesting our review of this matter. Through agreements reached with your office and theirs, we are sending them similar reports today.

Sincerely yours,

Comptroller General
of the United States

Enclosure

SUMMARY OF INFORMATION DEVELOPED ON THE AWARD TO HUGHES AIRCRAFT COMPANY FOR THE REPAIR OF TACTICAL DATA EQUIPMENT ABOARD THE U.S.S. KITTY HAWK

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> "The scope of this refurbishment is such that it is considered beyond the shipyard's capacity to complete within the available time frame considering this late planning start. Planning and contracting efforts with Hughes have now progressed to the point that any change could jeopardize meeting Kitty Hawk schedule requirements."

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show, however, that Puget Sound only spent about 78 days (or about 2 percent of the Hughes' proposed labor charge) reworking deficiencies. Furthermore, the rework related to specific equipment components and did not necessarily require complete disassembly. When compared with the total staff-days required to complete the project, we do not believe that the days spent reworking the deficiencies could have provided Puget Sound significant experience beyond what it already had acquired.

ADDITIONAL COMMERCIAL SOURCES NOT SOLICITED

The Armed Services Procurement Regulation establishes uniform procurement policies and procedures within the Department of Defense. It provides that when the negotiated procurement method is employed, offers should be solicited from the maximum number of qualified sources consistent with the nature and requirements of the supplies or services to be procured.

Sea Systems officials informed us that since this was the first Class A overhaul, it was their opinion that fewer problems would be encountered if the original manufacturer was used. They also told us that development of another commercial source would be very costly and would take about 1 year for another commercial source to develop the necessary overhaul procedures. As a result, Sea Systems did not consider any other commercial sources for the Kitty Hawk overhaul.

On September 25, 1975, about 4 months after it had been advised that funds were available, Sea Systems prepared and submitted its procurement request to contracting personnel. The procurement request recommended sole-source negotiation with Hughes. Therefore, even though Sea Systems had sufficient time to canvass the electronics industry to determine whether any other firms might have been interested in the project, it did not do so.

As justification for the sole-source procurement, Sea Systems provided the following reasons:

--Hughes was the exclusive manufacturer of the display console equipment.

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--It was the only firm possessing equipment to repair failed units in an emergency.

--Detailed performance and design specifications were not available to permit required testing of repaired components by any other firm.

The Kitty Hawk repair was not an emergency situation. Rather, the repair had been planned for at least 8 months before the Kitty Hawk's contract award in January 1976. Furthermore, the repair was the first in a series of about 30 ships equipped with tactical data systems.

Ship Engineering Center officials told us that detailed performance and design specifications were not available for use by other commercial sources because the Navy's drawings and data package had not been kept up to date. We were told that since the original equipment was built about 12 years ago there have been over 500 changes. They also told us that potential competitors would need current drawings to assist in the development of work process steps for equipment disassembly, testing, and reassembly. Since the drawings are not available, Hughes has been the only commercial source to perform any work on the Hughes manufactured tactical data system display equipment.

Ship Engineering Center officials further told us that the Navy has the original drawings, the field changes, and the manufacturer's modifications. According to these officials, any commercial source would have to update the drawings at a minimum cost of $400,000 before the work process steps could be prepared; therefore, it would be reluctant to undertake such a task without a guarantee that it would be awarded some repair work.

In view of the requirement of the Armed Services Procurement Regulation to solicit offers from the maximum number of qualified sources and the estimated program cost of about $36 million covering about 30 ships, we believe that Sea Systems should have taken steps to determine whether other qualified commercial sources existed. At a minimum, other firms in the electronics industry should have been contacted and given an opportunity to compete.

We do not believe the Navy has demonstrated that competition was not available from other commercial sources or that

only one source could meet the Government's minimum needs. Its sole-source procurement was primarily based on its failure to keep tactical data system equipment drawings and specifications up to date.

PUGET SOUND COST ESTIMATE FOR KITTY HAWK APPEARS TO BE UNDERSTATED

Since Sea Systems did not consider the use of Government personnel, it did not request any shipyard, including Puget Sound, to prepare a cost estimate for the Kitty Hawk. Nevertheless, on December 3, 1975, Puget Sound did submit an unofficial cost estimate of $300,000, based on the use of about 1,565 staff-days and material costs of about $85,000.

On December 17, 1975, a Puget Sound official informed Sea Systems that the cost estimate had been increased to about $550,000 to cover conformal coating of printed circuit cards. This estimate was based on 2,815 staff-days and material costs of $125,000. Sea Systems officials told us that they did not take Puget Sound's estimates seriously because they believed it did not understand the scope of the work.

The Hughes proposal for the Kitty Hawk was for about $1,070,000. This bid included direct labor costs of $300,000 based on 4,169 staff-days. The contract amount applicable to the Kitty Hawk was about $1,145,000, including long lead-time items of about $116,000. The final project performance cost, however, was about $1,134,000, including about $12,000 of rework costs for Puget Sound to correct deficiencies noted during its inspections of Hughes' work.

Because of the questions about Puget Sound's ability to perform the required work on the Kitty Hawk and the fact that its cost estimate was not prepared in sufficient detail so that it could be independently audited, we could not determine what Puget Sound's cost of performance would have been. We believe, however, that Puget Sound's unofficial estimate for the Kitty Hawk was understated since it was considerably lower than its estimate for similar work on the U.S.S. Ranger.

In November 1976 Puget Sound submitted an estimate of about $900,000 to overhaul the Ranger's tactical data system equipment. The proposal included computer peripheral equipment not manufactured by Hughes. The estimated cost for overhaul of the Hughes manufactured display console equipment was

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about $800,000. The estimate was based on about 3,825 staff-days, or about 136 percent of its staff-day estimate for the Kitty Hawk.

Puget Sound officials would not explain the $250,000 difference between their Kitty Hawk and Ranger cost estimates because they never considered their Kitty Hawk estimate to be official. We believe that the $250,000 difference between the two estimates--which represents a 45-percent increase--raises a serious question as to the reasonableness of Puget Sound's cost estimate of $550,000 on the Kitty Hawk.

The bids submitted by Puget Sound on the Kitty Hawk and the Ranger did not represent the full cost to the Federal Government. Office of Management and Budget policy requires that, for cost comparison purposes, the Federal Government should include factors other than labor and material, such as depreciation costs, full-funded retirement costs, and foregone taxes. However, even though the bids did not include all costs and no comparative cost studies were performed, we believe the estimates indicate Puget Sound could be economically competitive for future tactical data system overhauls.

NAVY'S PLAN FOR FUTURE OVERHAULS

After the display system of the Kitty Hawk was repaired by Hughes, Sea Systems used Puget Sound for the next tactical data system overhaul. That overhaul was aboard the U.S.S. Ranger. A cognizant Sea Systems official told us that this decision was partially based on the Navy's need to have shipyard maintenance capability for tactical data system equipment.

In March 1977 Sea Systems proposed a plan to have future tactical data system overhauls performed by two Navy shipyards so that in-house technical competence necessary for military contingencies would be maintained. The plan further proposed that any overhaul projects in excess of the shipyards' capacity would be awarded to Hughes on a noncompetitive basis because of the cost and time necessary to prepare and maintain system design packages for potentially competitive sources. Navy officials could not say whether such costs would be offset by the economic advantages of competitive procurement. We were also told that the Assistant Secretary

of the Navy (Installations and Logistics) agreed with the plan.

Although we were told that the plan considered future concurrent ship overhauls and workload leveling needs, it did not consider the number of overhauls required to maintain the necessary maintenance capability. Furthermore, the Navy has not determined whether shipyard personnel need to perform Class A overhauls to maintain their technical competence.